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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/013,101	11/06/2001	Anthony O. Banal	10249US01	9549

7590

05/07/2003

Attention: Eric D. Levinson
Imation Corp.
Legal Affairs
P.O. Box 64898
St. Paul, MN 55164-0898

EXAMINER

HECKENBERG JR, DONALD H

ART UNIT	PAPER NUMBER
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1722

DATE MAILED: 05/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/013,101

Applicant(s)

BANAL ET AL.

Examiner

Donald Heckenberg

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 17-20 is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☒ Claim(s) 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on November 6, 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 1722

1. Claim 2 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim, or amend the claim to place the claim in proper dependent form, or rewrite the claim in independent form.

Claim 2 recites that that the objects formed in the molds are optical disc. Written as such, the claim only recites an intended use of the apparatus. It is well settled that the intended use of an apparatus is not germane to the issue of patentability of the apparatus. In re Casey, 370 F.2d 576, 580 152 USPQ 235, 238 (Cust. & Pat. App. 1967); In re Otto, 312 F.2d 937, 939, 136 USPQ 458, 459 (Cust. & Pat. App. 1963). Therefore, claim 2 does not further limit its parent claim.

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-2, 11-12, and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Shimazu et al. (U.S. Pat. No. 5,648,105; previously of record).

Art Unit: 1722

Shimazu discloses a multiple cavity injection molding system for making optical discs. The system comprises at two single cavity injection molds (A) for forming discs (see figure 1). Each of the molds having a first mating portion (1) and a second mating portion (2) which are movable between a closed position in which a mold cavity is formed and an open position in which the object is removed from the mold cavity (see column 4, lines 16-34). The molding system is provided with a resin delivery system operatively coupled to the first mating portion of each of the injection molds for delivering resin into the two single cavity molds (column 5, lines 18-44). The molding system is also provided with an ejector system operatively coupled to the second mating portion of the molds for ejecting the discs from the mold cavity (column 5, line 67 - column 6, line 5).

Shimazu also discloses the resin delivery system to include a hot runner manifold (16) which is spaced from a parting line of the injection molds (see figure 1). Shimazu further discloses each of the second mating portions of the molds to be resiliently coupled to the ejector mechanism in that the ejector mechanism is capable of back and forth movement within the second mating portion through the use of a hydraulic mechanism (column 5, line 45 - column 6, line 5).

Art Unit: 1722

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in Graham v. John Deere Co., 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary.

Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that

Art Unit: 1722

was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1, 3-4, and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gellert (U.S. Pat. No. 4,891,001) in view of Boudreau et al. (U.S. Pat. No. 6,036,472).

Gellert discloses a multiple cavity injection molding system. The system comprises two single cavity injection molds (28), each injection mold having a first mating portion and a second mating portion which are movable between a closed position in which a mold cavity is formed and an open position in which the object is removed the mold cavity (see figure 1, column 2, lines 17-24). The system further comprises a resin delivery system operatively coupled to the mating portion of each of the two molding cavities (see column 2, line 25 - column 4, line 6).

Gellert discloses the injection molds (28) to be separated from each other by an air gap (54, see figure 1 and column 2, lines 39-42). Gellert also teaches a coolant to be circulated through a passage (50) between the injection molds (see column 2, lines 37-39).

Art Unit: 1722

Gellert does not disclose the molding system to comprise an ejector system operatively coupled to the second mating portion of the injection molds.

Boudreau discloses an injection molding system. The molding system comprises two molding cavities. The system further comprises ejectors (62a and 62b) for the purpose of providing the molding system with an efficient means to remove the molded objects (column 3, lines 46-50).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Gallert to comprise ejectors because this would have allowed for efficient removal of the molded objects as suggested by Boudreau.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gellert and Boudreau as applied to claims 1, 3-4, and 6-9 above, and further in view of Miyazawa et al. (U.S. Pat. No. 5,232,710).

Gellert and Boudreau disclose the apparatus as described above, including the use of air as an insulator between the two mold cavities. Gellert and Boudreau do not disclose the material between the two molds to be a ceramic.

Art Unit: 1722

Miyazawa teaches that the equivalent insulative properties of air and ceramics are known in the injection molding art (column 9, lines 1-5).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Gellert and Boudreau as such to have used a ceramic between the two molds as opposed to air because ceramics are known in the art as an equivalent insulator to air as suggested by Miyazawa.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazu in view of Takahashi et al. (U.S. Pat. No. 5,388,982).

Shimazu teaches the apparatus as described above. Shimazu does not disclose the mating portions of each of the injection molds to independently center the molds upon moving to the closed position.

Takahashi discloses a multi-cavity injection mold for making optical discs. Takahasi teaches the two molds to independently center themselves as the molds are closed (column 8, lines 28-44). Takahasi discloses that this allows for the molding of discs with highly accurate dimensions (column 8, lines 45-50).

Art Unit: 1722

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Shimazu as such to have the two molds independently center themselves as the molds are closed because this would help mold disc with accurate dimensions as suggested by Takahashi.

10. Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimazu in view of Steil et al. (U.S. Pat. No. 6,368,542).

Shimazu teaches the apparatus as described above. Shimazu does not disclose the first mating portion of the injection molds to be resiliently coupled to the resin delivery system by the use of Belleville washers.

Steil discloses an injection molding apparatus. Steil teaches the mold to comprise a mold block (12) and a resin delivery system (18). The mold block is resiliently coupled to the resin delivery system by the use of Belleville washers (68) for the purpose of allowing for the thermal expansion of the resin delivery system (column 2, lines 47-58).

It would have been obvious to one of ordinary skill in the art at the time of the Applicant's invention to have modified the apparatus of Shimazu as such to have resiliently coupled the

Art Unit: 1722

mating portions of the injection molds to the resin delivery system using Belleville washers because this would have allowed for the thermal expansion of the resin delivery system as suggested by Steil.

11. Claim 16 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. Claims 17-20 are allowed.

13. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fails to teach or suggest a multiple cavity injection molding system comprising at least two single cavity injection molds for forming objects, each injection mold having a first mating portion and a second mating portion which are movable between a closed position in which a mold cavity is formed and an open position in which the object is removed from the mold cavity, a resin delivery system coupled to the first mating portion of each of the injection molds for delivering resin into each of the injection molds, an ejector

Art Unit: 1722

system operatively coupled to the second mating portion of the injection molds for ejecting the object from the mold cavity, wherein Belleville washers are used to resiliently couple the second mating portion to the ejector system as recited in claim 16. The prior art of record also fails to teach or suggest a multiple cavity injection molding system comprising a resin injection mechanism, an ejector mechanism, a first mold for forming an optical disc, a cavity side of the first mold movably coupled to the resin injection mechanism and a mating core side of the first mold resiliently coupled to the ejector mechanism, a second mold for forming an optical disc, a cavity side of the second mold movably coupled to the resin injection mechanism and a mating core side of the second mold resiliently coupled to the ejector mechanism, and wherein the cavity side and core sides of the first and second molds are all capable of moving independently of each other as recited in claim 17.


The closest prior art taught by Shimazu and Gellert. Shimazu and Gellert with any combination of the other references do not teach or suggest an injection molding system with Belleville washers used to resiliently couple the second mating portion to the ejector system as described in claim 16. Nor do Shimazu and Gellert with any combination of the other references teach the injection molding system with the cavity side and the

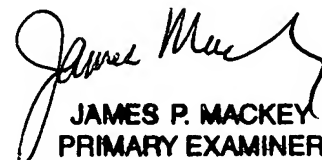
Art Unit: 1722

core side of the first and second molds all capable of moving independent from each other as recited in claim 17.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald Heckenberg whose telephone number is (703) 308-6371. The examiner can normally be reached on Monday through Friday from 9:30 A.M. to 6:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker, can be reached at (703) 308-0457. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310 for responses to non-final action, and 703-872-9311 for responses to final actions. The unofficial fax phone number is (703) 305-3602.


Donald Heckenberg
April 30, 2003


JAMES P. MACKEY
PRIMARY EXAMINER

5/2/03